DOCUMENT RESUME

ED 202 087 EA 013 524

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| AUTHOR | Wagner, Alan P. |
| TITLE | An Inventory of Post-Compulsory Education and Training Programs in the U.S. and Sources of Support. |
| INSTITUTION | Stanford Univ., Calif. Inst. for Research on Educational Finance and Governance. |
| SPONS AGENCY | National Inst. of Education (DHEW), Washington, D.C. |
| REPORT NO | IFG-PR-80-A14 |
| PUB DATE | Nov 80 |
| GRANT | OB-NIE-G-80-0111 |
| NOTE | 32p.; Some tables may not reproduce clearly due to small print of original document. |
| AVAILABLE FROM | Institute for Research on Educational Finance and Governance, CERAS Bldg., Stanford University, Stanford, CA 94305 ($1.00). |
| EDRS PRICE | MF01/PC02 Plus Postage. |
| DESCRIPTORS | Adults; Age; Colleges; Community Organizations; Correctional Education; Correspondence Schools; Employers; Employment; *Enrollment; Ethnic Groups; Family Income; Federal Aid; *Financial Support; *Lifelong Learning; Military Training; *Participant Characteristics; Postsecondary Education; Private Financial Support; Professional Associations; Proprietary Schools; Race; Religious Organizations; Sex; Tutoring; Two Year Colleges; Unemployment; Unions; Vocational Education; Vocational Schools |

ABSTRACT

In terms of both dollars and number of participants, the scope of postcompulsory or lifelong learning in the U.S. is extensive. This report enumerates the number of participants in each lifelong learning program, estimates the cost of each program, indicates its funding sources, and describes program participants' demographic and economic characteristics. In 1980 an estimated 50 million persons participated in lifelong learning; 42 percent were in postsecondary educational institutions (including four-year, two-year, vocational, proprietary, and correspondence schools), where they accounted for 71 percent of all lifelong learning hours. The other 58 percent of participants were in noninstitutional education or training programs given by elementary or secondary schools, businesses, unions, professional associations, prisons, the military, federal, state, and local governments, religious or cultural groups, and tutors. The programs cost over 50 billion dollars, of which 60 percent came from public sources. Data concerning age, race or ethnic group, sex, employment status, and family income of learners when combined with the information on costs and numbers of participants, suggest that present public funding is unevenly distributed and that easing administrative and financial barriers would increase participation in the critical noninstitutional education and training area. (Author/RW)

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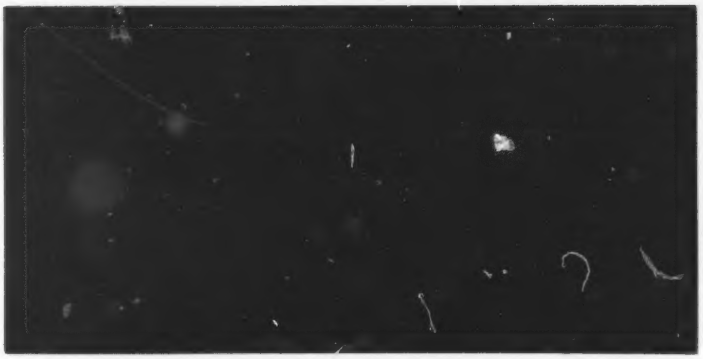

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Project Report No. 80-A14

# AN INVENTORY OF POST-COMPULSORY EDUCATION AND TRAINING PROGRAMS IN THE U.S. AND SOURCES OF SUPPORT

Alan P. Wagner*

November 1980

*Dr. Wagner is an Assistant Professor in the Consumer Science and Retailing Department of Purdue University.

The research for this report was supported by funds from the National Institute of Education (Grant No. OB-NIE-G-80-0111). An earlier version of this paper was presented at the IFG/OECD Seminar on the Cost and Financing of Recurrent Education in July 1980 at the Institute for Research on Educational Finance and Governance (a technical appendix is available upon request). The analyses and conclusions do not necessarily reflect the views or policies of these organizations.

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## Abstract

In 1980, 50 million individuals in the U.S. will participate in at least one type of organized learning activity at a cost of $55 billion. Thus, in terms of both numbers and dollars, the scope of recurrent education activities in the U.S. is extensive. The purpose of this paper is to examine this breadth in greater detail. The author discusses different types of post-compulsory education and training programs in the U.S., compares the costs of and funding for these activities, and considers differences in the attributes of participants among the programs.

In 1980, 50 million individuals in the United States will participate in at least one type of organized postsecondary learning activity at a cost of $55 billion. While the actual numbers are imprecise, the volume of and investment in learning beyond high school are impressive. The purposes of this paper are to estimate the participation in different types of post-compulsory education and training programs in the United States, to compare the costs of and funding for these activities, and to consider differences in the attributes of participants among programs.

As sources of improvements in the productive capacities of workers, all post-compulsory education and training programs merit the attention of policy makers. The more detailed focus on the different types of education and training is important for several reasons. First, efforts to improve productivity through post-high school education and training may be less successful if public policies ignore sources of training outside of postsecondary educational institutions. Beyond identifying the available sources of training, the comparison may reveal which providers tend to be most efficient in producing trained manpower. Second, eligibility for public subsidies might be extended to non-traditional programs as a means of reaching those most in need of training (e.g., the disadvantaged of the older worker with technically obsolete skills).

For the purposes of this paper, post-compulsory education and training programs are identified as those which include any formal, organized sessions of instruction. The definition excludes self-directed study, on-the-job training, and programs designed to transmit information only.

Even with this restriction, the numbers must be regarded as "order of magnitude" estimates, principally because the data, culled from several published and unpublished sources, are inconsistent and, in some instances, quite dated.

I begin with a discussion of the enrollments in different types of post-compulsory education and training programs. Estimates of the costs of, and sources of funding for, these programs are considered in section II. In section III, differences in the attributes of participants among the programs are discussed. The last section presents several implications for public policy.

## I. Volume and Types of Post-Compulsory Education and Training

Estimates of the number of participants in post-compulsory education and training programs vary. The Carnegie Commission (1973) estimated that 74 million individuals participated in some organized learning activity in 1970 (projected to 108 million in 1980). This is reasonably close to the ETS estimate of 62 million learners for 1972 (Carp, Peterson, and Roelfs 1974), but much higher than the 27 million reported in companion Census surveys (NCES-sponsored Survey of Adult Education and the Census Bureau's own October school enrollment surveys). More recently, Peterson and others (1979) estimated the participation in organized post-high school education and training at 64 million. My own estimate, for 1980, is 75 million (see Table 1), although this figure (and the others) probably overstates the unduplicated count of participants by about 30 percent.

What types of education and training programs are chosen? During 1980, nearly 58 percent of the enrollees attended programs other than those offered at postsecondary education institutions. This finding is consistent

Table 1

Participation in Post-Compulsory Education and Training Programs by Source, 1980

| | Participants | | Participant Class Hours | |
|---|---|---|---|---|
| | Number[a] (thousands) | Percent | Number (millions) | Percent |
| TOTAL | 74,850 | 100.0% | 8,950 | 100.0% |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | 31,350 | 41.9 | 6,350 | 71.0 |
| Four-Year Colleges and Universities | | | | |
| Full-Time | 7,900 | 10.6 | 2,600 | 29.0 |
| Part-Time | 3,500 | 4.7 | 525 | 5.9 |
| Non-Credit | 3,100 | 4.2 | 75 | .8 |
| Two-Year Colleges | | | | |
| Full-Time | 2,000 | 2.7 | 650 | 7.3 |
| Part-Time | 2,700 | 3.6 | 350 | 3.9 |
| Non-Credit | 3,450 | 4.6 | 100 | 1.1 |
| Vocational | | | | |
| Full-Time | 600 | .8 | 450 | 5.0 |
| Part-Time | 3,000 | 4.0 | 550 | 6.1 |
| Proprietary | | | | |
| Full-Time | 600 | .8 | 450 | 5.0 |
| Part-Time | 3,000 | 4.0 | 550 | 6.1 |
| Correspondence (civilian) | 1,500 | 2.0 | 50 | .6 |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | 43,500 | 58.1 | 2,600 | 29.0 |
| Elementary and Secondary Schools | 2,400 | 3.2 | 150 | 1.7 |
| Business or Industry | | | | |
| Apprenticeships | 700 | .9 | 100 | 1.1 |
| Other organized instruction (off-the-job) | 7,400 | 9.9 | 400 | 4.5 |
| Professional Associations | 5,500 | 7.3 | 125 | 1.4 |
| Labor Unions | 100 | .1 | 25 | .3 |
| Armed Forces | | | | |
| Initial training | 1,050 | 1.4 | 500 | 5.6 |
| Other organized instruction | 750 | 1.0 | 150 | 1.7 |
| Correspondence | 1,000 | 1.3 | 50 | .6 |
| Prisons | 75 | .1 | 25 | .3 |
| Other Government Programs | | | | |
| Manpower training | 975 | 1.3 | 325 | 3.6 |
| Cooperative extension | 5,100 | 6.8 | 75 | .8 |
| Other organized instruction (off-the-job) | 1,300 | 1.7 | 75 | .8 |
| Other Organized Programs (churches and synagogues, community organizations, libraries and museums, etc.) | 16,000 | 21.4 | 575 | 6.4 |
| Tutors | 1,150 | 1.5 | 25 | .2 |

SOURCES OF DATA: Numbers represent best estimates, using published, available data from Census, private association, agency, and other surveys. Rounded to nearest 25 thousand (million). See Appendix Tables A1 to A23.

[a]Overstates number of participants by about 30% due to multiple program enrollments.

with Peterson's estimate as well as figures cited by Virginia Smith (1973).

This, and other interesting dimensions of current post-compulsory education and training programs, emerge from the detailed distribution of participants by source of program in Table 1. Similar to other studies, the programs shown here are defined largely in terms of the provider (such as a four-year college or a tutor). Broschart (1977), among others, notes that this approach is but one of several ways of categorizing post-compulsory education and training.[1] The inventory of programs by provider, however, permits some comparisons with previous studies, reveals some differences in costs of and sources of funding for essentially identical training, and, in some cases, also distinguishes among types of education and training programs. To allow additional comparisons by type of program and funding, I have extended the general approach in two ways. First, estimates of participation by "type of program" (e.g., full-time, part-time, and non-credit study) are presented for some providers since differences in the type of course and the characteristics of participants are obvious. Second, some essentially similar programs offered within major employment sectors ("private" business or industry, armed forces, government) are considered separately, since these represent major providers of training. Although good descriptions of the types of programs appear elsewhere (Fraser 1980; Peterson and others 1979; Calvert 1977), several of the figures merit emphasis.

First, to better reflect the level of resources required to provide post-compulsory education and training, the participant data have been converted to equivalent class hours for each program. These estimates are shown in the last two columns of Table 1. Here, contrary to the distribution of participants, providers other than postsecondary educational

institutions account for less than 30 percent of the total class hours devoted to post-compulsory education and training. Clearly, much of the training outside of postsecondary educational institutions is less extensive (fewer courses per participant) and relatively short-term (fewer hours). As a result, those attending courses at postsecondary educational institutions spend over 200 hours in class, on average, while their counterparts receiving training from other providers average less than 100 hours in class.

Second, part-time (including correspondence) and non-credit enrollments represent about two-thirds of the 31 million enrolled in all postsecondary educational institutions. According to these figures, although full-time enrollment of 7.9 million students at four-year institutions clearly dominates, part-time and non-credit enrollments represent a sizeable proportion of this sector's clientele. These observations become all the more significant when viewed in light of recent enrollment trends: full-time enrollments rising at about 1 percent per year, part-time enrollments at about 6 percent per year, and non-credit enrollments (registrations) at about 7 percent per year over the 1976-78 period (NCES 1980 and Dearman 1980).

Third, nearly 15 percent of all participants in post-compulsory education and training receive off-the-job, classroom instruction provided by employers.[2] Although the estimates are "best guesses," these programs train 7.4 million in the private sector plus 1.8 million in the armed services plus 1.3 million in the public sector (federal, state, and local). According to Lusterman (1977) and the Office of Personnel Management (1979), this training takes place on or near the job site and tends to be job-related.

Fourth, federal, state, and local governments will directly provide post-compulsory education and training to over 25 million individuals in 1980.

In addition to the armed forces and public employee training just discussed, the programs are quite diverse: adult and vocational education at elementary and secondary schools, CETA vocational training for the disadvanted and un- or under-employed workers, a growing set of education programs in prisons (particularly at the postsecondary level), cooperative extension meetings, and programs of public community organizations, libraries, and museums. These programs are examined in more detail in other studies (see, eg., Congressional Budget Office 1980; Bell and others 1979; U.S. Department of Agriculture 1980; Kay 1974; and Peterson and others 1979), but the nature and range of the learning activities should be obvious.

## II. Costs of and Sources of Funding for Post-Compulsory Education and Training Programs

In 1980, the instructional costs of post-compulsory education and training programs will exceed $50 billion (see Table 2). Although the figures are not strictly comparable, the Carnegie Commission (1973) estimated the 1970 costs at $28 billion. The estimate excludes the indirect costs of the participants' time. If these are included, more than $100 billion in instruction and individual time resources will be devoted to post-high school education and training.

Selected measures of instructional costs by source of program are shown in Table 2. Particularly for programs provided outside educational institutions, the figures represent "best guesses." Again, however, some broad generalizations are possible.

First, the largest share of total cost, by far, appears in four-year colleges and universities ($24,525 million, or 43.4% of the $56 billion expended). Perhaps the single most important reason for this result is

Table 2

Selected Measures of Instructional Costs of
Post-Compulsory Education and Training Programs by Source, 1980

| | Total Cost[a] | | Per Program Participant[b] | Per Participant Class Hour[c] |
|---|---|---|---|---|
| | Dollars (millions) | Percent | | |
| TOTAL | $56,475 | 100.0% | $ 750 | $ 6.25 |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | 39,600 | 70.1 | 1,275 | 6.25 |
| Four-Year Colleges and Universities | 24,525 | 43.4 | 1,700 | 7.75 |
| Two-Year Colleges | 5,675 | 10.0 | 700 | 5.25 |
| Vocational Schools | 4,300 | 7.6 | 1,200 | 4.25 |
| Proprietary Schools | 4,050 | 7.2 | 1,125 | 4.00 |
| Correspondence Schools (civilian) | 1,050 | 1.8 | 700 | 18.25 |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | 16,875 | 29.9 | 400 | 6.50 |
| Elementary and Secondary Schools | 350 | .6 | 150 | 2.75 |
| Business or Industry | | | | |
| Apprenticeships | 350 | .6 | 475 | 3.25 |
| Other org. instruction (off-the-job) | 7,200 | 12.7 | 975 | 18.00 |
| Professional Associations | 550 | 1.0 | 100 | 4.50 |
| Labor Unions | 25 | * | 225 | 7.25 |
| Armed Forces | | | | |
| Initial training | 2,825 | 5.0 | 2,675 | 9.50 |
| Other organized instruction | 775 | 1.4 | 1,000 | 5.00 |
| Correspondence | 700 | 1.2 | 700 | 18.25 |
| Prisons | 100 | .2 | 1,225 | 4.50 |
| Other Government Programs | | | | |
| Manpower training | 1,475 | 2.6 | 1,500 | 4.75 |
| Cooperative Extension | 350 | .6 | 75 | 5.75 |
| Other organized instruction (off-the-job) | 575 | 1.0 | 450 | 6.50 |
| Other Organized Programs (churches and synagogues, community organizations, libraries and museums, etc.) | 1,500 | 2.6 | 100 | 2.75 |
| Tutors | 100 | .2 | 100 | 4.00 |

SOURCES OF DATA: Numbers represent best estimates, using published, available data from Census, private association, agency, and other surveys. See Appendix Tables B1 to B17.

*LT .1 percent

[a]Rounded to nearest 25 million.

[b]Rounded to nearest 25 dollars.

[c]Rounded to nearest 25 cents.

the relatively high number of participant class hours at these institutions. In fact, over 70 percent of the dollars for post-compulsory education and training are spent by postsecondary educational institutions.

Second, employer-sponsored, off-the-job training programs account for over $11 billion in instructional costs, or about 20 percent of the total. In particular, private industry spent $7.2 billion for class room instruction at the job site. The armed forces allocated over $2.8 billion for initial training and .8 billion for advanced instruction at military installations and schools. Instructional costs for government employee training came to an estimated $[illegible] million in 1980.[3]

Third, considerable differences emerge in direct costs per participant and per participant class hour. These figures control, to some extent, for the size of the programs offered by each provider, and hence give a better indication of differences in the costs of providing training. However, even these cost measures conceal important differences. For example, the high cost per class hour in post-baccalaureate study has been averaged with relatively low cost per class hour in non-credit courses. Further, flight programs in proprietary or vocational schools, or in the armed forces, tend to be considerably more expensive than other programs offered by these providers.[4]

Even with the "concealed" differences, the range of instructional costs per student is revealing: from $2,675 for initial training in the armed forces to about $1,700 in four-year college and university programs to less than $100 per participant for extension, tutored, and other organized community programs. Differences remain even when costs are measured per participant class hour, although the ranking of providers is somewhat altered. Four-year college or university programs run almost

$8 per hour compared to $5-$5.50 in armed services training. Principally because few class hours are required, correspondence courses are estimated to cost over $18 per hour. This finding is also consistent with the Carnegie Commission's (1973) estimate for 1970.[5]

How are these costs of instruction met? Data on all sources of funding for all providers are quite sketchy, but enough information exists to suggest relative differences among programs in sources of funding. The amounts from each funding source used to meet the costs of instruction for each provider are shown in Table 3. Public funding consists of: 1) appropriations made to the provider from federal, state, or local governments; 2) grants and scholarships awarded through federal, state, or local government programs; and 3) tax expenditures for tuition aid, charitable contributions, and spending for training (private providers only). Private sources of support include: 1) employer tuition aid and expenditures on in-house training (net of tax expenditures); 2) other support derived from charitable giving (net of tax expenditures), or through non-profit organizations; and 3) out-of-pocket spending by participants and their families (a residual). Many of the published figures on sources of support for individual programs were adjusted to include only the amounts used to defray instructional costs. Thus, I have attempted to exclude, among others, the wage costs of participants (and the employers' support of these costs), and student aid used primarily to support living costs. Obviously, these adjustments required strong, somewhat arbitrary assumptions, and all of these are spelled out in the Appendix.[6] Given these cautions, several useful patterns in sources of funding emerge.

Table 3

Costs of and Sources of Funds for Post-Compulsory Education and Training Programs, 1980

| | COST OF INSTRUCTION (millions of dollars) | SOURCES OF FUNDS (millions of dollars) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Public | | | Private | | |
| | | Instit. Approp.[a] | Student Aid Grants[b] | Tax Expend.[c] | Employer[d] | Other[e] | Student[f] and/or Family |
| TOTAL | $56,475 | $25,425 | $4,550 | $3,875 | $5,650 | $2,000 | $14,975 |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | 39,600 | 18,050 | 4,500 | 1,150 | 600 | 1,500 | 13,800 |
| Four-Year Colleges and Universities | 24,525 | 10,300 | 2,700 | 1,050 | 300 | 1,400 | 8,775 |
| Two-Year Colleges | 5,675 | 3,925 | 800 | 50 | 100 | 50 | 750 |
| Vocational Schools | 4,300 | 3,450 | 575 | 25 | 100 | 25 | 125 |
| Proprietary Schools | 4,050 | 275 | 375 | 25 | 100 | 25 | 3,250 |
| Correspondence Schools (civilian) | 1,050 | 100 | 50 | - | - | - | 900 |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | 16,875 | 7,375 | 50 | 2,725 | 5,050 | 500 | 1,175 |
| Elementary and Secondary Schools | 350 | 300 | - | - | - | - | 50 |
| Business or Industry | | | | | | | |
| Apprenticeships | 350 | 150 | - | 75 | 125 | - | - |
| Other Organized Instr. (off-the-job) | 7,200 | - | - | 2,525 | 4,675 | - | - |
| Professional Associations | 550 | - | 50 | 50 | 125 | 100 | 225 |
| Labor Unions | 25 | - | - | - | - | 25 | - |
| Armed Forces | | | | | | | |
| Initial Training | 2,825 | 2,825 | - | - | - | - | - |
| Other Organized Instr. | 775 | 775 | - | - | - | - | - |
| Correspondence | 700 | 700 | - | - | - | - | - |
| Prisons | 100 | 100 | - | - | - | - | - |
| Other Government Programs | | | | | | | |
| Manpower Training | 1,475 | 1,475 | - | - | - | - | - |
| Cooperative Extension | 350 | 350 | - | - | - | - | - |
| Other Organized Instr. (off-the-job) | 575 | 575 | - | - | - | - | - |
| Other Organized Programs (churches and synagogues, community organizations, libraries and museums, etc.) | 1,500 | 125 | - | 75 | 125 | 375 | 800 |
| Tutors | 100 | - | - | - | - | - | 100 |

SOURCES OF DATA: Numbers represent best estimates, using published available data from Census, private association, agency, and other surveys. Rounded to nearest 25 million; amounts less than 12.5 million are omitted. See Appendix Tables B1 to B17.

[a] Includes institutional appropriations from federal, state, and local jurisdictions allocated to provider.

[b] Includes public grants and scholarships awarded directly to students through Basic Grants, Supplemental Grants, State Grants, and 25 percent of Veteran's Administration benefits (an estimate of the proportion of VA benefits covering tuition and fees expenses). Tuition waivers are funded by institutional appropriations (and included there).

[c] Tax expenditures consist of reduced tax liabilities resulting from private tuition aid plans, corporate and individual support of educational and training programs, and the implicit tax subsidy for programs offered in private industry.

[d] Includes support of tuition aid, on-site training programs in the private sector, and programs offered by other providers, net of tax expenditures.

[e] Includes corporate, non-profit, and individual support of educational and training programs, either to institutions or to students (excluding tuition aid).

[f] Includes funds provided by participants, out-of-pocket or supported through proceeds from work or loans.

Taken together, public funding (including tax expenditures) provides $33,850 million, or about 60 percent of the total cost of instruction of post-compulsory education and training programs in 1980.[7] Even though the larger amount of this public subsidy ($23,700 million) is allocated to postsecondary educational institutions, the share of instructional costs met through public funding for non-postsecondary school providers (61 percent of the $16,875 million expended) is about the same as in the postsecondary education sector (60 percent).

However, wide differences in the form of the public subsidy do appear. Postsecondary educational institutions receive $18,050 million in institutional appropriations, compared to a little over $7 billion allocated to other providers. Even considering the larger costs of instruction in the postsecondary education sector, the difference is large: institutional appropriations meet 49 percent of costs at the schools, while providing only 43 percent for other sponsors. A similar difference in levels of support occurs in the distribution of student aid grants. Here, the $4.5 billion awarded to students meets 11 percent of instructional costs at postsecondary institutions. The $50 million in grants awarded to participants in non-school programs represents less than a 1 percent share of costs.[8]

Third, the sectors also differ in the amount of support received from private sources. Here, almost 90 percent of the $5,650 billion provided by employers goes to support non-postsecondary school programs of post-compulsory education. The $5,050 million supporting these other providers of training meets 30 percent of the instructional costs in this sector. This also helps explain the nearly $3 billion in tax expenditures ($2,525 million for employer-provided in-house training alone), as private sector

employers, treating training costs as a business expense, reduce their taxable income by the total cost of their programs.

Fourth, the share of all costs of instruction undertaken by employees primarily at their employers' expense exceeds $10 billion, or almost 20 percent of the total. Included here are all private sector employer spending ($5,650 million), plus armed forces training (total: $4 billion), plus government employee in-house training (at $575 million).

Finally, some interesting differences emerge in sources of funding for different types of postsecondary education. Four-year college and university programs meet about 40 percent of costs ($10.3 billion) through institutional appropriations, and perhaps 12 percent through public and private grants. At two year or vocational institutions, 70 to 80 percent of the funding ($3.9 billion and $3.4 billion, respectively) comes from institutional appropriations, with student aid grants and out-of-pocket spending accounting for another 15 percent each. This pattern is reversed for proprietary and correspondence school programs, where 80 to 85 percent of costs are met through the participants' own resources.[9]

## III. Characteristics of Participants in Post-Compulsory Education and Training Programs

Whether differences in public funding across providers serves to meet public policy goals depends, in part, on the extent to which particular types of individuals participate in the training. In Tables 4 to 8, participants are distributed by age, race, sex, employment status, and income and by provider. These comparisons suggest which providers currently serve (or don't serve) potential target groups and which programs are likely to grow or contract.

Differences in the distribution of participants by age suggest the providers which best meet the concept of recurrent education, and, importantly for policy purposes, which programs are likely to grow most rapidly through the 1980's. Table 4 presents the approximate age distribution of participants in each type of post-compulsory activity. From the estimates, those providers and programs serving the middle-age group (age 35 to 54) include part-time post-secondary education (where 30 to 36 percent of the provider's participants come from this age group). Private employee in-house organized training, professional association training, and government employee in-house training draw even more heavily from the middle-age group, accounting for 39 to 42 percent of the participants in these programs. As might be expected, younger learners represented the largest shares in full-time post-secondary education (ranging from 90 percent at four-year colleges and universities to 46 percent at proprietary schools), initial training in the armed forces (92 percent) and government manpower training (56 percent). Significantly, these programs serving younger age groups tend to utilize public funding, while the programs serving the middle-age groups rely more heavily on private sources of funds.

Table 4

Participants in Post-Compulsory Education and Training Programs by Age and Source, 1978

| | Total 17 Years and Over | 17-24 Years | 25-34 Years | 35-54 Years | 55-64 Years | 65 Years and Over |
|---|---|---|---|---|---|---|
| TOTAL CIVILIAN ADULT POPULATION[b] | 100% | 20 | 22 | 30 | 13 | 15 |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | | | | | | |
| Four-Year College or University | | | | | | |
| Full-Time[a] | 100% | 90 | 8 | 3 | - | - |
| Part-Time[b,1] | 100% | 17 | 47 | 30 | 5 | 1 |
| Two-Year College and Vocational-Technical Inst. | | | | | | |
| Full-Time[a] | 100% | 84 | 12 | 4 | | |
| Part-Time[b,1] | 100% | 26 | 36 | 30 | 6 | 2 |
| Proprietary | | | | | | |
| Full-Time[b,2] | 100% | 46 | 33 | 18 | 2 | 1 |
| Part-Time[b,1] | 100% | 22 | 35 | 36 | 6 | 1 |
| Correspondence[b,3] | 100% | 19 | 39 | 33 | 7 | 3 |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | | | | | | |
| Elementary and Secondary Schools (part-time)[b] | 100% | 23 | 34 | 34 | 7 | 2 |
| Business or Industry | | | | | | |
| Apprenticeships[d] | 100% | | | | | |
| Other Organized Instr. (off-the-job)[b,4] | 100% | 15 | 37 | 39 | 7 | |
| Professional Associations[b,5] | 100% | 9 | 36 | 42 | 10 | 2 |
| Labor Unions | na | | | | | |
| Armed Forces | | | | | | |
| Initial Training[e,6] | 100% | 92 | 7 | 1 | - | - |
| Other Organized Instr. | na | | | | | |
| Correspondence | na | | | | | |
| Prisons[f,7] | 100% | 38 | 38 | 21 | 3 | - |
| Other Government Programs | | | | | | |
| Manpower Training[g] | 100% | 56 | 27 | 10 | 3 | - |
| Cooperative Extension[h] | 100% | 13 | 25 | 29 | 16 | 10 |
| Other Organized Instr. (off-the-job)[b,4] | 100% | 15 | 37 | 39 | 7 | 1 |
| Other Organized Programs[b,8] (churches and synagogues, community organizations, libraries and museums, free universities, etc.) | 100% | 17 | 35 | 33 | 9 | 5 |
| Tutors[b] | 100% | 20 | 33 | 32 | 10 | 4 |

SOURCES OF DATA:

[a] Current Population Reports, Series P-20, #346, Tables 8, 17 and 19.

[b] Boaz, Participation in Adult Education, 1978, unpublished tabulations. Based on those 17 years of age and older.

[c] Dearman and Plisko, The Condition of Education, 1980 Edition, Tables 3.5 and 3.6.

[d] ETA Interchange, March 1980. Data refer to registered apprenticeships (about 60 percent of the total).

[e] Defense Manpower Data Center, unpublished tabulations, 1980.

[f] Bell and others, Correctional Education Programs for Inmates, pp. 15-18; U.S. National Criminal Justice Information and Statistical Service (1980), Tables 1, 2, 3, 6 and 9; U.S. National Criminal Justice Information and Statistical Service (1979), Table 2.

[g] USDOL, CETA Quarterly Progress Reports and Summary Reports, 1980, unpublished tabulations; and USDOL, WIN 1968-1978, Table 2, p. 20.

[h] USDA, Evaluation of Economic and Social Consequences of Cooperative Extension Programs, Table 7, and unpublished tabulations from USDA-funded special Gallup poll.

[i] Office of Personnel Management, Employee Training in the Federal Service, Fiscal Year 1978, Charts 13 and 15, and unpublished tabulations.

[j] Smith, Patricia A., and others, "Financing Undergraduate Education in 1978-79," unpublished tabulations from AHS survey.

[k] Author's estimate.

NOTES:

[1] Includes non-credit enrollments.

[2] Based on respondents enrolled full-time in an occupational program of more than 6 months.

[3] Based on distribution of course registrations.

[4] Based on "business or industry" distribution.

[5] Based on "labor/professional organization" distribution.

[6] Based on distribution of accessions.

[7] Based on distribution of prisoners.

[8] Based on "private organization" and "other" distributions.

[9] Based on distribution of prisoners prior to incarceration.

Table 5

Participants in Post-Compulsory Education and Training by Race and Ethnic Origin and Source, 1978

| | Total | White | Black | Hispanic | Other |
|---|---|---|---|---|---|
| TOTAL CIVILIAN ADULT POPULATION[b] | 100% | 83 | 10 | 5 | 2 |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | | | | | |
| Four-Year Colleges and Universities | | | | | |
| Full-Time[c] | 100% | 84 | 8 | 3 | 3 |
| Part-Time[b,1] | 100% | 91 | 5 | 2 | 2 |
| Two-Year Colleges and Vocational-Technical Inst. | | | | | |
| Full-Time[c] | 100% | 76 | 13 | 6 | 5 |
| Part-Time[b,1] | 100% | 89 | 5 | 4 | 2 |
| Proprietary | | | | | |
| Full-Time[b,2] | 100% | 76 | 16 | 6 | 2 |
| Part-Time[b,1] | 100% | 90 | 5 | 4 | 1 |
| Correspondence[b,3] | 100% | 93 | 5 | 2 | - |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | | | | | |
| Elementary and Secondary Schools (part-time)[b] | 100% | 82 | 7 | 8 | 3 |
| Business or Industry | | | | | |
| Apprenticeships[d] | 100% | 82 | 9 | 5 | 4 |
| Other Organized Instr. (off-the-job)[b,4] | 100% | 93 | 4 | 2 | 1 |
| Professional Associations[b,5] | 100% | 94 | 3 | 2 | 1 |
| Labor Unions | na | | | | |
| Armed Forces | | | | | |
| Initial Training[e,6] | 100% | 75 | 16 | 4 | 4 |
| Other Organized Instr. | na | | | | |
| Correspondence | na | | | | |
| Prisons[f,7] | 100% | 51 | 37 | 10 | 2 |
| Other Government Programs | | | | | |
| Manpower Training[g] | 100% | 48 | 34 | 13 | 4 |
| Cooperative Extension[h] | 100% | 95 | | 5 | |
| Other Organized Instr. (off-the-job)[i] | 100% | 82 | 11 | 3 | 4 |
| Other Organized Programs[b,8] (churches and synagogues, community organizations, libraries and museums, free universities, etc.) | 100% | 93 | 3 | 2 | 2 |
| Tutors[b] | 100% | 95 | 1 | 2 | 1 |

SOURCES OF DATA:

[a] Current Population Reports, Series P-20, #346, Tables 6, 17 and 19.

[b] Boaz, Participation in Adult Education, 1978, unpublished tabulations. Based on those 17 years of age and older.

[c] Dearman and Plisko, The Condition of Education, 1980 Edition, Tables 3.5 and 3.6.

[d] ETA Interchange, March 1980. Data refer to registered apprenticeships (about 60 percent of the total).

[e] Defense Manpower Data Center, unpublished tabulations, 1980.

[f] Ball and others, Correctional Education Programs for Inmates, pp. 15-18; U.S. National Criminal Justice Information and Statistical Service (1980), Tables 1, 2, 3, 6 and 9; U.S. National Criminal Justice Information and Statistical Service (1979), Table 2.

[g] USCOL, CETA Quarterly Progress Reports and Summary Reports, 1980, unpublished tabulations; and USCOL, WIN 1968-1978, Table 2, p. 20.

[h] USDA, Evaluation of Economic and Social Consequences of Cooperative Extension Programs, Table 7, and unpublished tabulations from USDA-funded special Gallup poll.

[i] Office of Personnel Management, Employee Training in the Federal Service, Fiscal Year 1978, Charts 13 and 15, and unpublished tabulations.

[j] Smith, Patricia A., and others, "Financing Undergraduate Education in 1978-79," unpublished tabulations from AMS survey.

[k] Author's estimate.

NOTES:

[1] Includes non-credit enrollments.

[2] Based on respondents enrolled full-time in an occupational program of more than 6 months.

[3] Based on distribution of course registrations.

[4] Based on "business or industry" distribution.

[5] Based on "labor/professional organization" distribution.

[6] Based on distribution of accessions.

[7] Based on distribution of prisoners.

[8] Based on "private organization" and "other" distributions.

[9] Based on distribution of prisoners prior to incarceration.

Table 6

Participants in Post-Compulsory Education and Training
by Sex and Source, 1978

| | Total | Male | Female |
|---|---|---|---|
| TOTAL CIVILIAN ADULT POPULATION[b] | 100% | 47 | 53 |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | | | |
| Four-Year College or University | | | |
| Full-Time[c] | 100% | 53 | 47 |
| Part-Time[b,1] | 100% | 45 | 55 |
| Two-Year College or Vocational-Technical Inst. | | | |
| Full-Time[c] | 100% | 50 | 50 |
| Part-Time[b,1] | 100% | 37 | 63 |
| Proprietary | | | |
| Full-Time[b,2] | 100% | 50 | 50 |
| Part-Time[b,1] | 100% | 46 | 54 |
| Correspondence (civilian)[b,3] | 100% | 68 | 32 |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | | | |
| Elementary and Secondary Schools (part-time)[b] | 100% | 28 | 72 |
| Business or Industry | | | |
| Apprenticeships[d] | 100% | 97 | 3 |
| Other Organized Inst. (off-the-job)[b,4] | 100% | 62 | 38 |
| Professional Associations[b,5] | 100% | 56 | 44 |
| Labor Unions | na | | |
| Armed Forces | | | |
| Initial Training[e,6] | 100% | 87 | 13 |
| Other Organized Instr. | na | | |
| Correspondence | na | | |
| Prisons[f,7] | 100% | 96 | 4 |
| Other Government Programs | | | |
| Manpower Training[g] | 100% | 46 | 53 |
| Cooperative Extension[h] | 100% | 32 | 68 |
| Other Organized Inst. (off-the-job)[i] | 100% | 65 | 35 |
| Other Organized Programs[b,8] (churches and synagogues, community organizations, libraries and museums, free universities, etc.) | 100% | 35 | 65 |
| Tutors[b] | 100% | 27 | 72 |

SOURCES OF DATA:

[a] Current Population Reports, Series P-20, #346, Tables 6, 17 and 19.

[b] Boaz, Participation in Adult Education, 1978, unpublished tabulations. Based on those 17 years of age and older.

[c] Dearman and Plisko, The Condition of Education, 1980 Edition, Tables 3.5 and 3.6.

[d] ETA Interchange, March 1980. Data refer to registered apprenticeships (about 60 percent of the total).

[e] Defense Manpower Data Center, unpublished tabulations, 1980.

[f] Ball and others, Correctional Education Programs for Inmates, pp. 15-18; U.S. National Criminal Justice Information and Statistical Service (1980), Tables 1, 2, 3, 6 and 9; U.S. National Criminal Justice Information and Statistical Service (1979), Table 2.

[g] USDOL, CETA Quarterly Progress Reports and Summary Reports, 1980, unpublished tabulations; and USDOL, MDTA 1968-1978, Table 2, p. 20.

[h] USDA, Evaluation of Economic and Social Consequences of Cooperative Extension Programs, Table 7, and unpublished tabulations from USDA-funded special Gallup poll.

[i] Office of Personnel Management, Employee Training in the Federal Service, Fiscal Year 1978, Charts 13 and 15, and unpublished tabulations.

[j] Smith, Patricia A., and others, "Financing Undergraduate Education in 1978-79," unpublished tabulations from AMS survey.

[k] Author's estimate.

NOTES:

[1] Includes non-credit enrollments.

[2] Based on respondents enrolled full-time in an occupational program of more than 6 months.

[3] Based on distribution of course registrations.

[4] Based on "business or industry" distribution.

[5] Based on "labor/professional organization" distribution.

[6] Based on distribution of accessions.

[7] Based on distribution of prisoners.

[8] Based on "private organization" and "other" distributions.

[9] Based on distribution of prisoners prior to incarceration.

Table 7

Participants in Post-Compulsory Education and Training
by Employment Status and Source, 1978

| | Total | Employed | Not Employed |
|---|---|---|---|
| TOTAL CIVILIAN ADULT POPULATION[b] | 100% | 60 | 40 |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | | | |
| Four-Year College or University | | | |
| Full-Time[a] | 100% | 38 | 64 |
| Part-Time[b,1] | 100% | 87 | 13 |
| Two-Year College and Vocational-Technical Inst. | | | |
| Full-Time[a] | 100% | 50 | 50 |
| Part-Time[b,1] | 100% | 77 | 21 |
| Proprietary | | | |
| Full-Time[a] | 100% | 30 | 70 |
| Part-Time[b,1] | 100% | 82 | 19 |
| Correspondence (civilian) | na | | |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | | | |
| Elementary and Secondary Schools (part-time)[b] | 100% | 65 | 35 |
| Business or Industry | | | |
| Apprenticeships[k] | 100% | 100 | - |
| Other Organized Inst. (off-the-job)[b,4] | 100% | 91 | 9 |
| Professional Associations[b,5] | 100% | 94 | 6 |
| Labor Unions[k] | 100% | 100 | - |
| Armed Forces | | | |
| Initial Training[k] | 100% | 100 | - |
| Other Organized Instr.[k] | 100% | 100 | - |
| Correspondence[k] | 100% | 100 | - |
| Prisons[f,9] | 100% | 69 | 30 |
| Other Government Programs | | | |
| Manpower Training[g] | 100% | 4 | 96 |
| Cooperative Extension[h] | 100% | 30 | 70 |
| Other Organized Instr. (off-the-job)[k] | 100% | 100 | |
| Other Organized Programs[b,8] (churches and synagogues, community organizations, libraries and museums, free universities, etc.) | 100% | 67 | 32 |
| Tutors[b] | 100% | 63 | 37 |

SOURCES OF DATA:

[a]Current Population Reports, Series P-20, #346, Tables 6, 17 and 19.

[b]Buaz, Participation in Adult Education, 1978, unpublished tabulations. Based on those 17 years of age and older.

[c]Dearman and Plisko, The Condition of Education, 1980 Edition, Tables 3.5 and 3.6.

[d]ETA Interchange, March 1980. Data refer to registered apprenticeships (about 60 percent of the total).

[e]Defense Manpower Data Center, unpublished tabulations, 1980.

[f]Ball and others, Correctional Education Programs for Inmates, pp. 15-18; U.S. National Criminal Justice Information and Statistical Service (1980), Tables 1, 2, 3, 6 and 9; U.S. National Criminal Justice Information and Statistical Service (1979), Table 2.

[g]USDOL, CETA Quarterly Progress Reports and Summary Reports, 1980, unpublished tabulations; and USDOL, MIN 1968-1978, Table 2, p. 20.

[h]USDA, Evaluation of Economic and Social Consequences of Cooperative Extension Programs, Table 7, and unpublished tabulations from USDA-funded special Gallup poll.

[i]Office of Personnel Management, Employee Training in the Federal Service, Fiscal Year 1978, Charts 13 and 15, and unpublished tabulations.

[j]Smith, Patricia A., and others, "Financing Undergraduate Education in 1978-79," unpublished tabulations from AMS survey.

[k]Author's estimate.

NOTES:

[1]Includes non-credit enrollments.

[2]based on respondents enrolled full-time in an occupational program of more than 6 months.

[3]based on distribution of course registrations.

[4]based on "business or industry" distribution.

[5]based on "labor/professional organization" distribution.

[6]based on distribution of accessions.

[7]based on distribution of prisoners.

[8]based on "private organization" and "other" distributions.

[9]based on distribution of prisoners prior to incarceration.

Table 8

Participants in Post-Compulsory Education and Training
by Family Income and Source, 1978

| | Total, All Income Quartiles | Income Quartile: Lowest | Lower Middle | Upper Middle | Highest |
|---|---|---|---|---|---|
| TOTAL CIVILIAN ADULT POPULATION[b] | 100% | 23 | 28 | 28 | 20 |
| POSTSECONDARY EDUCATIONAL INSTITUTIONS | | | | | |
| Four-Year College or University | | | | | |
| Full-Time[c] | 100% | 17 | 20 | 24 | 29 |
| Part-Time[b,1] | 100% | 7 | 24 | 36 | 33 |
| Two-Year College and Vocational-Technical Inst. | | | | | |
| Full-Time[c] | 100% | 21 | 27 | 25 | 27 |
| Part-Time[b,1] | 100% | 12 | 29 | 32 | 27 |
| Proprietary | | | | | |
| Full-Time[c] | 100% | 38 | 28 | 19 | 14 |
| Part-Time[b,1] | 100% | 12 | 28 | 35 | 25 |
| Correspondence (civilian) | na | | | | |
| OTHER POST-COMPULSORY EDUCATION AND TRAINING | | | | | |
| Elementary and Secondary Schools (part-time)[b] | 100% | 14 | 27 | 32 | 27 |
| Business or Industry | | | | | |
| Apprenticeships | na | | | | |
| Other Organized Instr. (off-the-job)[b,4] | 100% | 6 | 23 | 37 | 34 |
| Professional Associations[b,5] | 100% | 5 | 18 | 34 | 33 |
| Labor Unions | na | | | | |
| Armed Forces | | | | | |
| Initial Training | na | | | | |
| Other Organized Instr. | na | | | | |
| Correspondence | na | | | | |
| Prisons[f,9] | 100% | 79 | 12 | 7 | 3 |
| Other Government Programs | | | | | |
| Manpower Training[g] | 100% | 91 | 9 | - | - |
| Cooperative Extension[h] | 100% | 18 | 25 | 30 | 27 |
| Other Organized Instr. (off-the-job)[i] | 100% | 12 | 27 | 41 | 20 |
| Other Organized Programs[b,8] (churches and synagogues, community organizations, libraries and museums, free universities, etc.) | 100% | 11 | 26 | 33 | 30 |
| Tutors[b] | 100% | 12 | 21 | 30 | 37 |

SOURCES OF DATA:

[a]Current Population Reports, Series P-20, #346, Tables 6, 17 and 19.

[b]Boaz, Participation in Adult Education, 1978, unpublished tabulations. Based on those 17 years of age and older.

[c]Dearman and Plisko, The Condition of Education, 1980 Edition, Tables 3.5 and 3.6.

[d]ETA Interchange, March 1980. Data refer to registered apprenticeships (about 60 percent of the total).

[e]Defense Manpower Data Center, unpublished tabulations, 1980.

[f]Ball and others, Correctional Education Programs for Inmates, pp. 15-18; U.S. National Criminal Justice Information and Statistical Service (1980), Tables 1, 2, 3, 6 and 9; U.S. National Criminal Justice Information and Statistical Service (1979), Table 2.

[g]USDOL, CETA Quarterly Progress Reports and Summary Reports, 1980, unpublished tabulations; and USDOL, WIN 1968-1978, Table 2, p. 20.

[h]USDA, Evaluation of Economic and Social Consequences of Cooperative Extension Programs, Table 7, and unpublished tabulations from USDA-funded special Gallup poll.

[i]Office of Personnel Management, Employee Training in the Federal Service, Fiscal Year 1978, Charts 13 and 15, and unpublished tabulations.

[j]Smith, Patricia A., and others, "Financing Undergraduate Education in 1978-79," unpublished tabulations from AHS survey.

[k]Author's estimate.

NOTES:

[1]Includes non-credit enrollments.

[2]Based on respondents enrolled full-time in an occupational program of more than 6 months.

[3]Based on distribution of course registrations.

[4]Based on "business or industry" distribution.

[5]Based on "labor/professional organization" distribution.

[6]Based on distribution of accessions.

[7]Based on distribution of prisoners.

[8]Based on "private organization" and "other" distributions.

[9]Based on distribution of prisoners prior to incarceration.

Differences in the distribution of participants by racial ethnic group and by sex seem to indicate differences in the level of subsidy and in the type of training received by these groups. As shown in Table 5, although whites are heavily represented in postsecondary education, they also constitute a larger than proportional share in private employer in-house organized instruction (93 percent), professional association (94 percent), and public employee organized instruction (93 percent). On the other hand, accounting for 10 percent of the civilian adult population, blacks tend to be more heavily represented in armed forces and government manpower training (at 16 and 34 percent, respectively). These latter training programs rely exclusively on public funding.

The differences in the distribution of participants by sex and provider (Table 6) suggest that women may be less likely to receive employment-related training than men. In particular, men comprise the majority of participants in apprenticeship, professional association, and both private and public employee organized training. The latter programs are particularly important, since they may facilitate promotion in the company or agency. Elementary and secondary school, cooperative extension, and community-based programs -- programs which are more likely to be avocational -- enroll larger proportions of women.

Finally, participation in all programs tends to be linked to employment and income, as can be seen from Tables 7 and 8. However, those not working represent a majority of the participants in full-time study (50 to 70 percent) and in manpower training programs (96 percent). Similarly, over 90 percent of the trainees in government manpower training programs come from the lowest income quartile.

## IV. Concluding Remarks

The $55 billion spent in post-compulsory education and training programs in 1980 represent an important investment in probably the most important factor of production: human resources. Yet, the data presented in this paper suggest sizeable differences exist in the types of, costs of, and sources of funding for these programs. Three findings with broad implications emerge.

First, although over half of the participants enroll in programs offered outside of postsecondary educational institutions, the major portion of post-compulsory education and training costs are incurred in the postsecondary education sector. In part, this reflects the amount of participant time devoted to the learning activities. But, even though similar proportions of the instructional costs in both sectors appear to be met through public funding, this parity disappears when government-provided programs (armed forces, manpower training, public employee training) are separated out of the non-school sector. This contrast suggests potential administrative and financial barriers to providing further education and training outside of schools. If these barriers were eased (through voucher or institutional funding), larger numbers of individuals might be able to participate in types of programs of particular importance to policy makers (eg., job-related training provided by employers and professional associations).

Second, with the aging of the U.S. population, participation in programs outside of postsecondary educational institutions will continue to increase at a faster rate than full-time postsecondary education enrollments. Here, the growth of non-credit, community-based, and employer training programs might be expected. The role for public policy in this area is not clear. Public funding for these non-traditional programs might be channeled to sponsors or to students. A voucher scheme would put funds at the disposal

of potential participants, removing at least part of the financing constraint. Further, educational institutions may be encouraged to continue to expand their offerings into these non-academic program areas.

Finally, although the level of public funding is substantial, the distribution across programs and, hence, across sub-populations, is far from even. Currently, the major proportion of public funding supports programs serving younger, minority, male, and employed participants. Opportunities for supporting other post-compulsory education and training activities clearly exist, and should be explored.

## Footnotes

1. For example, one could distinguish between job-related and avocational training. Unfortunately, the available participant and cost data do not permit these comparisons. Whether the participant's "purpose" should influence public support for the activity is, of course, a policy decision. Current policies are somewhat contradictory, and indirectly applied. For example, college students enrolled less than half-time are generally ineligible for federal financial aid (in part, because they are presumably less serious about their schooling). On the other hand, local governments underwrite a substantial share of the costs for avocational programs sponsored by community organizations.

2. This estimate excludes employees attending college or university courses, professional association training, and labor union classes at the employers' expense (i.e., "sponsored" by the employer). It would include courses taught by consultants or other instructors, as well as in-house training staff, provided that the course was conducted at or near the job site.

3. The figures here are imprecise, for two major reasons. First, many firms simply do not know how much they spend for training employees in-house. Second, the definitions of formal training differ: some include on-the-job learning as well as off-the-job, classroom instruction. As part of a broader project on financing adult education, Anderson and others (in process) are attempting to measure costs of training programs in firms, unions, community organizations, and other sponsors. Their findings may help to more accurately gauge the level of investment in training outside of schools. See, also, Goldstein (1980) and Gregory Smith (1980).

4. Most postsecondary educational institutions also impose higher fees for flight programs. However, only a few colleges or universities now charge graduate students (or upper division undergraduates) higher tuition than lower division undergraduates.

5. I also find that per hour instructional costs tend to be somewhat lower in proprietary school programs than for the roughly comparable offerings in vocational schools. See Wilms (1974) for a further discussion of this point.

6. Several other examples will illustrate key assumptions: 1) I allocated institutional appropriations to postsecondary institutions among the teaching, research, and service functions in proportion to their shares of expenditures. 2) Under student aid grants, I exclude all social security benefits, three-fourths of the Veteran's Administration benefits paid to postsecondary training participants, and all proceeds from subsidized work or loan programs. As noted in the text, I am assuming these funds go primarily to support living costs, rather than instructional costs. 3) In the area of private programs, I assume an average 35 percent corporate tax rate.

7. Across all programs, Christoffel (1978) has estimated that programs for which adults (age 25 and over) are eligible were budgeted at $14 billion in federal aid in 1977.

8. These grants would meet the costs of public sector employees participating in professional association training programs (teachers, government employees, and members of the armed forces).

9. These overall averages mask important differences in the receipt of student aid. As Wagner (1978), the Committee on the Financing of Higher Education for Adult Students (1974) and Van Dusen (1975) document, the part-time postsecondary student is less likely to receive aid.

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